



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/883,740	06/18/2001	John G. McDonough	TI-31695	1761
23494	7590	10/19/2007	EXAMINER	
TEXAS INSTRUMENTS INCORPORATED P O BOX 655474, M/S 3999 DALLAS, TX 75265				DSOUZA, JOSEPH FRANCIS A
ART UNIT		PAPER NUMBER		
		2611		
NOTIFICATION DATE			DELIVERY MODE	
10/19/2007			ELECTRONIC	

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

uspto@ti.com
uspto@dlemail.itg.ti.com

WD

Office Action Summary	Application No.	Applicant(s)
	09/883,740	MCDONOUGH ET AL.
	Examiner Adolf DSouza	Art Unit 2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 8/2/2007.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 2,4-15 and 17-49 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) 6-15, 17-44 and 49 is/are allowed.
- 6) Claim(s) 2,4,5,45 and 47 is/are rejected.
- 7) Claim(s) 46,48,50 is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date: _____ | 6) <input type="checkbox"/> Other: _____ |

Response to Arguments

1. Applicant's arguments filed 8/2/2007 have been fully considered but they are not persuasive.

Argument: Applicant has argued that Storm discloses that at the end of the sleep interval, the "reference timer expires substantially synchronized" and that the "local timing is precisely aligned with the system timing" (Remarks 8/2/2007; page 13) and therefore there is no need to combine Storm with Yu.

Response: Examiner respectfully disagrees. As indicated in the last Office Action (4/10/2007; page 2, paragraph 2), Storm indicates that after coming out of sleep mode, the timing isn't accurate enough ad it needs to be reacquired (Fig. 3B, element 344; column 1, lines 39-41, 54-59). Applicant stated that what is stated in column 1, refers to the "Background of the Invention and prior practices" (remarks, page 13, lines 6). If Applicant interprets what is stated in column 1 as prior practice and not relevant to Storm's invention, Examiner still contends that adjusting the timing after coming out of sleep mode is still prior art. Further Fig. 3B, element 344 referred to, where Storm adjusts the timing after coming out of sleep mode, is clearly Storm's invention and is not any other art. Applicant states that element 344 is referred to "only once" (Remarks, page 13, line 8). Storm doesn't have to disclose it several times for it to be considered part of Storm's invention; just once is enough.

Argument: Regarding claim 47, Applicant has argued that IIR filters are difficult to implement.

Response: Examiner respectfully disagrees. One of ordinary skill in the art knows how to easily implement IIR filters, taking into account word length effects. Also, taking into consideration the argument presented above, Examiner maintains his rejection on claim 47.

2. Applicant's arguments, see Remarks (page 14), filed 8/2/2007 with respect to the rejection(s) of claim(s) 45 under 35 USC 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Hulsing et al (US 5,097,490).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2, 4, 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Storm et al. (US 6,016,312) in view of Yu et al. (US 6,735,454).

Regarding claim 2, Storm et al. discloses in direct sequence spread spectrum (DSSS) communications, a method for recovering system timing, the method comprising (col. 1, lines 39-41, col. 3, lines 13-14, 25-26):

disabling a reference clock during a sleep interval (col. 5, lines 50-53, col. 7, lines 63-67, col. 8, lines 56-61) ;

following the sleep interval, enabling the reference clock (col. 5, lines 11-25, col. 6, lines 42-47, col. 7, lines 11-13, col. 9, lines 27-33);

modifying the system timing by a ratio, where the ratio is the reference clock frequency divided by the sleep clock frequency (col. 6, lines 1-6);

measuring a reacquisition error and wherein calculating the ratio includes calculating the ratio in response to the reacquisition error (col. 1, lines 51-59, col. 8, lines 33-35, col. 9, lines 52-58).

Storm does not disclose wherein the sleep clock frequency is adjusted for frequency drift.

In the same field of endeavor, however, Yu discloses wherein the sleep clock frequency is adjusted for frequency drift (abstract, col. 6, lines 22-26).

Therefore it would have been obvious to one of ordinary skill in the art to modify Storm et al. to incorporate wherein the sleep clock frequency is adjusted for frequency drift in

order to compensate for the initial and final offsets to re-activate the high frequency clock to be re-activated based upon fractional portions of the low frequency clock (Yu et al., col. 4, lines 16-21).

Regarding claim 4, Storm discloses prior to disabling the reference clock, determining the number of sleep clock periods in the sleep interval; and wherein disabling reference clock during the sleep interval includes disabling the reference clock for the determined number of sleep clock periods (col. 7, lines 11-13, 40-45, 63-67, col. 8, line 1).

All other limitations of claim 4 are as analyzed in claim 2 above.

Regarding claim 5, Storm discloses determining the number of sleep clock periods in the sleep interval includes determining the number of sleep clock periods using the ratio (col. 6, lines 30-52, col. 8, lines 32-35).

1. Claims 45 is rejected under 35 U.S.C. 103(a) as being unpatentable over Storm et al. (US 6,016,312) in view of Hulsing (US 5,097,490).

Regarding claim 45, Storm in direct sequence spread spectrum (DSSS) communications, a method for recovering system timing, the method comprising (col. 1, lines 39-41, col. 3, lines 13-14, 25-26):

Art Unit: 2611

disabling a reference clock during a sleep interval (col. 5, lines 50-53, col. 7, lines 63-67, col. 8, lines 56-61);

following the sleep interval, enabling the reference clock (col. 5, lines 11-25, col. 6, lines 42-47, col. 7, lines 11-13, col. 9, lines 27-33);

modifying the system timing by a ratio, where the ratio is a frequency of the reference clock divided by the frequency of a sleep clock (col. 6, lines 1-6).

Storm does not disclose that the frequency of the reference clock is obtained from the rising and falling edges of the reference clock.

Hulsing discloses the frequency of the clock is based upon an average of the number of rising and falling edges of the reference clock (column 1, lines 18 – 21, 28 – 34; column 4, lines 11 – 22; column 5, line 57 – column 6, line 13).

Therefore it would have been obvious to one having ordinary skill in the art, at the time the invention was made, to use the method, as taught by Hulsing, in the system of Storm because this would allow the frequency of the clock signal to be determined.

5. Claims 47 is rejected under 35 U.S.C. 103(a) as being unpatentable over Storm et al. (US 6,016,312) in view of Yu et al. (US 6,735,454) and further in view of Chung et al. (US 5,642,377).

Regarding claim 47, Storm discloses in a direct sequence spread spectrum (DSSS) communications, a method for recovering system timing, the method comprising (col. 1, lines 39-41, col. 3, lines 13-14, 25-26):

disabling a reference clock during a sleep interval (col. 5, lines 50-53, col. 7, lines 63-67, col. 8, lines 56-61);

following the sleep interval, enabling the reference clock (col. 5, lines 11-25, col. 6, lines 42-47, col. 7, lines 11-13, col. 9, lines 27-33);

and modifying the system timing by a ratio, where the ratio is the reference clock frequency divided by a sleep clock frequency (col. 6, lines 1-6).

Storm does not disclose the ratio is adjusted for frequency drift and that the ratio is smoothed out using an IIR filter.

In the same field of endeavor, however, Yu discloses wherein the sleep clock frequency is adjusted for frequency drift (abstract, col. 6, lines 22-26).

Therefore it would have been obvious to one of ordinary skill in the art to modify Storm et al. to incorporate wherein the sleep clock frequency is adjusted for frequency drift in order to compensate for the initial and final offsets to re-activate the high frequency clock to be re-activated based upon fractional portions of the low frequency clock (Yu et al., col. 4, lines 16-21).

Art Unit: 2611

In the same field of endeavor, however, Chung discloses applying an IIR filter to a current and a previous value of the ratio, whereby an error in the ratio is smoothed out (Fig. 6, element 22; column 8, lines 28 – 30. Chung discloses noise is smoothed out but of ordinary skill in the art knows that an IIR lowpass filter can be used to smoothen out any signal, including the ratio values).

Therefore it would have been obvious to one having ordinary skill in the art, at the time the invention was made, to use the method, as taught by Chung, in the system of Storm because this would allow the ratio to be averaged out, thereby reducing high frequency fluctuations in the ratio.

Allowable Subject Matter

6. Claims 6 – 15, 17 – 44, 49 are allowed.
7. Claims 46, 48 and 50 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Other Prior Art Cited

8. The prior art made of record and not relied upon is considered pertinent to the applicant's disclosure.

The following patents are cited to further show the state of the art with respect to sleep mode in mobile receivers:

Roberts et al. (US 6,212,398) discloses a Wireless telephone that rapidly reacquires a timing reference from a wireless network after a sleep mode.

Koenck et al. (US 6,014,705) discloses a modular portable data processing terminal having a higher layer and lower layer partitioned communication protocol stack for use in a radio frequency communications network.

Contact Information

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Adolf DSouza whose telephone number is 571-272-1043. The examiner can normally be reached on Monday through Friday from 8:00 AM to 5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Payne can be reached on 571-272-3024. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

Art Unit: 2611

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Adolf DSouza
Examiner
Art Unit 2611


AD


DAVID C. PAYNE
SUPERVISORY PATENT EXAMINER